

THE SUBMILLIMETER-WAVE SPECTRUM OF ALLYL ALCOHOL (CH₂=CHCH₂OH)

BRIAN J. DROUIN, JOHN C. PEARSON, *Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA 91109-8099.*

Two isomers of allyl alcohol have been further studied in selected regions of the submillimeter and microwave spectra. The skew-gauche and syn-gauche conformations have been previously identified at room temperature^{a,b} and in a free-jet^c, respectively. The present study positively identifies the syn-gauche conformer in the gas-phase at room temperature and confirms that tunneling, as opposed to internal rotation, of the hydroxyl proton is the predominant perturbation up to $K_a = 30$. Further measurements made in the X-band, at kHz precision, have increased the precision of the Coriolis coupling terms and energy level (tunneling) splitting. Extension of the spectral measurements has provided a set of spectral parameters that can accurately predict spectral line frequencies through much of the sub-millimeter.

^aA. N. Murty and R. F. Curl, Jr., *J. Chem. Phys.* **46**, 4176-4180 (1967)

^bH. Badawi, P. Lorencak, K. W. Hillig II, M. Imachi and R. L. Kuczkowski, *J. Mol. Struct.* **162**, 247-254 (1987).

^cS. Melandri, P. G. Favero and W. Caminati, *Chem. Phys. Lett.* **223**, 541-545, (1994)